

CITY OF ROCKAWAY BEACH  
ROCKAWAY BEACH, MISSOURI 65740

OFFICE OF THE CITY CLERK  
Post Office Box 315  
Telephone (417) 561-4424

MAYOR:

CLERK:

March 3, 2008

Cynthia Sans  
United States Environmental Protection Agency  
Region 7  
901 North 5<sup>th</sup> Street  
Kansas City, Kansas, 66101

RE: Rockaway Beach Wastewater Treatment Facility  
NPDES Permit No.: MO-0108162

Dear Ms. Sans:

Enclosed with this response letter please find the following, as per requested in your letter of February 5, 2008, Information Request-Enclosure 2.

- 1a. Daily Monitoring Reports from January 2005 through the present
- 2a. Bench Sheets and/pr laboratory analyses results attached to corresponding DMRs.\*
- 3a. Sludge sampling bench sheets and/or laboratory analyses results for the Period 2004 through the present
- 4a. Sludge application logs from 2004 through the present.

\* Some discrepancy was noted between the DMRs and the Bench Sheets. Since November, 2007, our new Plant Manager, Allen Bush, noted the discrepancies and has complete all DMRs and Bench Sheets in compliance with requirements.

Referencing your letter of December 31, 2007, Recommendations

Recommendations number 1 through number 9 have been addressed in the Plant Manager's Response Document Exhibit Number 1, with the exception of Number 6 and Number 10. The response to Number 6 is addressed in the Preventative Maintenance Program Exhibit Number 2.

Number 10. The intended use of the portable generator is being investigated by the Plant Manager. The better operation of the switch gear is being researched.

Referencing letter of February 5, 2008, Section V. Order of Compliance 31 though 38.

WENF Rec'd MAR 05 2008

*"In the Heart of the Missouri Ozarks on Lake Taneycomo"*

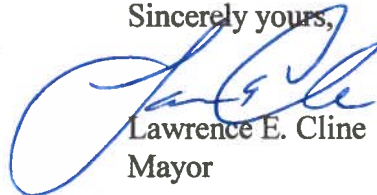
Also please find a report from Allen Bush the new plant manager. This report summarizes the condition and the up dates that have been established in the Regional Sewer Plant.

The time lines were noted as stated in each of there Orders of Compliance and all repairs and reports will meet the time lines as required within this Section V.

We sincerely believe you will find the above information and the enclosed supporting documents as a true and worthy effort to comply with the requests and recommendations of the Environmental Protection Agency.

If we can of service to you in any please do not hesitate to let us know.

Sincerely yours,

A handwritten signature in blue ink, appearing to read "Lawrence E. Cline", is written over the typed name.

Lawrence E. Cline  
Mayor

To: The Board of Alderpersons/ Regional Sewer Board

Re: Past DMR's for Plant

From: Plant Manager

I have been reviewing the copies of past dmr and bench sheets for lab. reports forms that were gave to the city.

I have not consumed a lot of time in reviewing the past sheets and the ones I have reviewed are not complete. Such as the suspended solids test shows the weights but not the mg/l that was used. The ph. test would have temperature compensated analysis in order to be correct and the d.o. would also have to be temperature compensated to be accurate. In the group of dmr's were missing sludge reports and I and I form that needs to be sent to dnr.

The City has purchased new lab. equipment for ph and do. that are temperature compensated. At this time the city and plant manager are setting up bench sheets and data sheets as well as a tracking program for the plant.

General report on the operation of plant.

We have both ditches on line and operating as designed at this time. We are using two blowers now, one for each ditch and have them set on timers for off and on. We are using the waste sludge basin for holding and have the surface aerator operating. The existing ditch from the old plant is operating for waste sludge as well as the existing clarifiers. The sludge pumps that were existing for the clarifiers do not work and are to small of horse power to move the thickened sludge to the waste basin holding. We are using a different pump that we set in each clarifier to move the sludge to basin.

At this time I feel we have made good strides in getting the plant back in operating condition and have a way to go to complete the task.

Re: Regional Sewer Plant

From: Allen Bush, Plant Manager

We have been working diligently toward complying to the counts in the violation order received from the Department of Environmental Protection Agency.

The counts will be answered in the order presented.

#### Count 1 Failure to Sample

Section 16 states what is required on the operating permit for sampling and analyzing.

Section 17 States that the respondent failed to follow section A of operating permit by not sampling the effluent and having falsified the DMR reports by indicating the samples had been collected and analysis.

Response: Take samples as required by the operating permit and use reagents and techniques that are allowed by DNR and EPA. 24 hour sampler is being used for sampling at this time and in the future.

#### Count 2 Improper sampling procedures

Section 18 states what is contained in the Standard Conditions of part 1 and section A.1 a. Which states the requirements and sampling procedures for the plant. Mainly a 24 hour sample of effluent before the effluent joins any source of water or additive for dilution. The respondent stated that it collects grab samples rather than composite. The grab samples do not conform to section A.

Section 19 States from Federal regulations that the required test to determine total ammonia as N and total phosphorus as P. The required test for the two substance require digestion in the initial steps were not performed. Which is improper sampling procedure.

Section 20 States the Missouri regulation that requires operational test be performed. The respondent was not performing the test as required.

Response: The Regional Plant purchased a 24 hour composite sampler and use the sampler once a week for effluent sampling. The sampler is set up in the filter building, due to the ambient weather and conditions of winter months. The influent is sampled by hand or called a modified composite sample. We take a grab sample every 2 hours during

normal business hours. The grab sample for influent is approx. 300 mls. And added to a container for mixing. The sampling is 2/ 8 hour days, which gives us approx. 2500 ml to set up test as required by the operating permit. 2 more 24 hour samplers have been ordered and we are waiting for delivery. The test for total ammonia is completed by electrode and digital read out using Standard method 4500-NH3 test procedure . The test for total phosphorus is completed by using the Standard methods test Number 4500-p with initial digestion.

Performing the operational tests as required for operation of plant, settleometer, suspended solids, ammonia, phosphorus, ph. D.o.

#### Count 3 Failure to retain records

Section 21 States in Standard conditions of the operating permit part I section A 7 that respondent retain all records for a period of three years from the date of sampling or calibration and maintenance records and all original strip chart records for recording continuous flow monitoring.

The respondent failed to maintain the records as required for permit compliance.

Response: We have started a filing system and monitoring for maintenance and calibrations.

#### Count 4 Facilities operation

The Standard conditions of permit , part I, section B,3 requires the respondent to operate and maintain the treatment plant to comply with Missouri clean water law and applicable permit conditions.

A. Respondent failed to maintain flow measuring equipment, specifically.

i the inflow and effluent monitoring devices had not been calibrated

Response: We hired Haynes Equipment to come and calibrate and or repair the flow meters and sending heads.

ii The head detector for the combined Merriam Woods- Bull Creek flow was not mounted at the proper location of the converging section of the Parshall Flume.

Response: Haynes Equipment checked and calibrated the flow measuring device for MW-BC and sent a calibration report to the regional sewer plant and is retained in records. A copy will be attached.

iii The flow meter for Rockaway Beach was not accurately measuring flow.

Response: Haynes Equipment checked the flow device for measuring and found the detector head was not working. He could not calibrate the unit until he ordered

and installed a new head. At this time the flow device has been repaired and calibrated and we are waiting on his report to be sent to us.

b States that the respondent failed to maintain the blower system to provide adequate aeration in the oxidation ditch for effective treatment. At the time of the inspection the dissolved oxygen measured 1.5 and the appropriate level for treatment is no greater than 0.4 .

Response: I feel that the numbers were turned around and should have stated the d.o. level at time of inspection was 0.4 mg/l and for treatment purposes should be 1.5 mg/l. The problem at the time goes back to inoperable motive pumps which helps turn the air into fine to course bubbles. At this time the west ditch is at 2.5 to 3.0 mg/l when blower is on and when blower is off for 30 minutes. The d.o. goes down to zero as we need for biologic treatment.

c Respondent failed to maintain the east aeration tank and clarifier in an operable condition.

Response: At this time the east ditch is full and online and operating along with the west ditch.

d Respondent failed to maintain the U.V. system in a functioning mode.

Response: The respondent hired a company named Enviro-line to repair the electronics and repair the unit in a working order. At this time enviro-line has removed the non-working led indicating lamps and are repairing the lamps for proper working order. At this time we do not use the U.V. system. We have a seasonal clause in operating permit. Between the months of October 31 to april 1 we do not treat for fecal.

#### Count 5 Failure to Report

23 special conditions of the operating permit states that the respondent turn in a report with the dmrs for October and April that in turn states what the respondent has done to find and repair sources of inflow and infiltration of the sewer system.

Response: At this time we are working on a report for April dmr

24 Standard conditions of the operating permit states that and annual report on sludge handling and application of the previous year.

Response: Respondent has made changes to sludge application and no sludge has been removed from plant site as of this letter. We have made some forms and have put into action a sampling program per load hauled and a form for

each day that sludge is hauled asking certain questions. Copy of such forms are attached.

- 25 Standard conditions of the operating permit state that when a bypass happens you must notify MODNR within an allotted time period and follow up with a written response in 5 days. EPA inspection found the filters were plugged and the flow was being diverted past the U.V. system as well as the filters.

Response: The respondent has repaired the backwash pumps and since November 1 have been using the filters and the filters have been operating as designed.

#### Count 6 Wrongful Sludge Application

- 26 Standard conditions of the operating permit incorporate conditions of the federal sludge disposal requirements and establish pollutant limits and managerial practices and operational procedures. The pathogen can be land applied have to be under 2,000,000 most probable number of fecal. The respondent applied sludge which was over the maximum number.

Response: The respondent will hold sludge longer and put into effect a more stringent sludge plan.

#### Count 7 Inadequate Outfall Marking

Special conditions of the operating permit state that the plant outfall be clearly marked for identification.

- 27 The outfall was not marked at all.

Response: A metal sign was made and states the outfall number and name of outfall and has been installed on a metal post and the post has been installed at the last manhole of the outfall.

#### Count 8 Bypass

- 28 During the EPA inspection. It was found that the sand filter backwash pumps had failed and and the filters were plugged and running over at a place that was bypassing the U.V. channel and going directly to the lake.

Response: The backwash pumps have been repaired and installed and have been operating as designed since November 1,2007.

## Enclosure 3

### CERTIFICATION STATEMENT

I certify under penalty of law that I am responding to this Information request truthfully. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME (print or type)

LAWRENCE E. CLINE

TITLE (print or type)

MAYOR

SIGNATURE

*Lawrence E. Cline*

DATE

3/3/08

undated  
unsigned



## Chapter 4 Personnel

### A. General

The operation of the Rockaway Beach Wastewater Treatment Plant is relatively simple when compared to more complex mechanical treatment systems. The operation of any sewage treatment facility is, however, more complex than the operation of a lagoon system. Consistent, good operation and management is essential for trouble-free operation, community acceptance, and meeting the standards imposed by regulatory agencies.

The skills required are varied, including those needed for supervision, as well as mechanical and electrical maintenance. Knowledge of what is needed to keep the mechanical units in operation and knowledge of the various general labor functions of maintenance are required. An understanding of the mechanism and microbiology of sewage treatment is also needed.

The operator must be licensed in the State of Missouri. A Class "C" license is recommended for the facility. The assistant or substitute operator should be training and planning to become licensed as a Class "C" operator.

The information in this manual, as well as "as-built" drawings and specifications, shop drawings, and operation information manuals provided by the state and equipment manufacturers, should be kept on file at the operator's office. Additional information should be added to these manuals as it is acquired.

### B. Staffing and Certification

#### 1. Head Operator

The head operator is directly in charge of the operation and maintenance of the sewage treatment facilities. Duties include operational and maintenance tasks, conducting the collection and analysis of samples, record keeping and preparation of reports and budget information. It is recommended that the head operator is Class "C" licensed in the State of Missouri. The head operator should be working toward a Class "B" license.

It is the head operator's responsibility to see that all needed laboratory and operating reports are properly prepared and filed in a timely manner. A sample report form is included in Chapter 6.

The most representative composite sample is a flow composite sample. A flow composite is made using portions of grab samples in proportion to the flow rate at the time the samples are collected. Time composite samples are equal samples taken at equal time intervals. Composite samples should be collected over the entire 24 hours of the day. Where facilities for the collection of samples are limited, samples over a shorter period of time are collected. The reliability of the test data decreases with a decrease in the portion of the day during which samples are collected.

BOD<sub>5</sub> and S.S. tests on the influent and effluent are most reliable when performed on composite samples.

#### Operational Tests and NPDES Tests

Current NPDES permit requires only once a month measurement using either 24 hour composite or grab samples as specified. The new NPDES permit should be consulted to determine exact required testing. Required operational tests according to 10 CSR 20-9 are listed following:

pH & Flow	Daily on Influent or Effluent
Settleability & Dissolved Oxygen	Daily on Mixed Liquor-Grab
Suspended Solids	Weekly Grab of Influent and Mixed Liquor
D.O.	Daily on Mixed Liquor

The anticipated NPDES testing to be performed weekly is listed following:

Phosphorus, Total as P	Monthly, 24 hour composite
Ammonia, Total as N	Monthly, 24 hour composite
BOD <sub>5</sub>	Effluent 24 hour composite
pH Dissolved Oxygen	Effluent Grab

### **Procedures:**

A brief description of some of the procedures for testing follows. The latest edition of Standard Methods for the Examination of Water and Wastewater should be consulted in conducting all required tests. Information for obtaining the Standard Methods book is located at the end of Chapter 5.

### **pH -**

Accurate determinations of pH can be made with a pH meter. Manufacturer's instructions should be followed. In addition to required tests, weekly checks of aeration tank and effluent pH are desirable.

Normal domestic wastewater has a pH near 7.0 (neutral) or slightly on the alkaline side but seldom above 7.5. Values outside the range of 6.5 to 7.0 may indicate the presence of acid or caustic industrial discharges.

The treatment facility has the capacity to neutralize acid and alkaline wastes if the influent is well mixed with the aeration (OXIDATION DITCH) basin contents. The treatment facility can operate at influent waste pH values as high as about 10 although sudden or unusual shifts in pH can impair the treatment efficiency. The pH in the aeration tank should never be above 10 or below 5.0. A pH change in the basin of more than .5 in a 24-hour period may be damaging to the treatment process. Biological activity is maintained most easily in a pH range of 6.0 - 9.0.

### **Settleable Solids -**

This test is generally performed using an Imhoff cone. The test is recommended daily on the influent flow. The sample can be a grab sample from a location of turbulent or well mixed flow. The Imhoff cone is filled to the mark with thoroughly mixed wastewater. The solids are allowed to settle for one or two hours. The one-hour test should be adequate for this facility. Fifteen minutes before the end of the test the cone is gently rotated or stirred to loosen solids adhering to the cone. The scale on the bottom of the cone is read and the values recorded.

The settleable solids test serves only to give an indication of the solids entering the facility. The results can be compared over a period of time to show increasing or decreasing solids levels. Increasing solids levels may warn the operator that additional air or sludge wasting may be required. The settleability and dissolved oxygen test can be used to verify needs.

### **Settleability -**

The settleability test is required daily on the aeration basin mixed liquor contents. The test can be run using a 1000 ml graduate cylinder or cylindrical glass container with graduations added to the outside.

The container is then filled to the top mark with mixed liquor immediately after the sample is taken. The solids are allowed to settle exactly 30 minutes. The volume occupied by the sludge in the lower part of the container is recorded. This information is converted to a percent of the total volume and recorded. The sludge volume percentage could be recorded at the end of 10, 20, 30 and 60 minutes if better records on the sludge settling characteristics are desired.

In a well operating treatment facility, the sludge will be dark brown and will settle to a relatively small volume. The liquid above the settled sludge will be relatively clear with a few light suspended solids being noted. The volume of settled sludge noted with this test will increase daily as the biological solids in the aeration basin increase. By noting this information, the operator can learn when sludge should be wasted from the system.

The clarity of the liquid above the settled sludge is an excellent indicator of the degree of treatment occurring. A well operating facility will produce a clear water.

A turbid liquid above the sludge indicates a poorly operating facility. Cloudy supernatant generally indicates inadequate dissolved oxygen in the mixed liquor. If the settled sludge is dark gray or black, inadequate oxygen is a definite problem and the oxygen added should be increased. If the sludge in the mixed liquor has settled only slightly and appears to be light and fluffy after 30 minutes, a biological problem might be indicated. Fungi and other long hairlike microorganisms may be actively growing in the facility. A low pH or a low dissolved oxygen level may cause this type of problem.

#### Dissolved Oxygen -

A dissolved oxygen probe and meter may be used to measure D.O. in the aeration basins. The portability and simplicity of operation of a membrane electrode probe and meter allows for determining the D.O. quickly without complicated filtration procedures.

#### Suspended Solids (SS) -

This test is required on the influent and mixed liquor on a weekly basis. NPDES reporting also requires effluent SS measurements at a frequency of at least once a month. Weekly measurements of effluent SS are recommended to optimally monitor and manage the treatment process. Suspended solids are operationally defined as those solids which do not pass through a standard glass fiber filter. Suspended solids are also sometimes referred to as non-filterable residue (NFR). Suspended solids information can be used to calculate the sludge volume index (SVI) and sludge density index (SDI) when used in conjunction with the results of the settleability tests. The accepted suspended solids test is performed according to Standard Methods. A centrifuging method is also possible if the correlation's with the standard test are verified. The SS concentration in the aeration basin should be maintained between 2000 and 5000 mg/l for an extended aeration facility such as the Oxidation Ditch. The concentration which provides best treatment depends on waste type and strength as well as the hydraulic

characteristics of the system. The mixed liquor concentration must be kept high enough to provide a sufficient population of active microorganisms to perform the necessary treatment. The treatment process should generally be able to achieve an effluent SS of between 10 to 25 mg/l.

#### Mixed Liquor Volatile Suspended Solids (MLVSS)

This is an important treatment parameter, which approximates the active bacterial population in the Oxidation Ditch. In order to determine MLVSS a sample from the Oxidation Ditch mixed liquor should be passed through a filter in order to isolate suspended solids. The suspended solids residue retained on the filter is then placed in a muffle furnace at  $500 \pm 50^{\circ}\text{C}$  for one hour. The weight loss occurring after one hour is volatile suspended solids.

#### 5-Day Biochemical Oxygen Demand -

A monthly BOD<sub>5</sub> test is required on the treatment facility effluent for NPDES reporting. It may be desirable to run more frequent tests on the effluent and a monthly test on the influent. The BOD<sub>5</sub> test requires training and should be performed according to the procedure presented in Standard Methods for the Examination of Water and Wastewater.

The composite sample containers should be cooled during sample collection. BOD samples should be stored in refrigerator or in as cool a spot as possible until the laboratory work can be performed. The treatment facility should be able to achieve a BOD<sub>5</sub> reduction of more than 90%. The BOD<sub>5</sub> concentration of normal domestic sewage is approximately 250 mg/l while the expected effluent values are 10 to 20 mg/l.

#### Temperature -

The temperature of the influent sewage should be measured daily. It may be desirable to measure temperature periodically in the aeration basins and in the final effluent.

#### Odor and Color -

Color and odor observations should be made and recorded. During treatment plant start-up the basin liquid will be gray in color and have an odor similar to dishwater. As the solids concentration builds up, the liquid color will change to light brown while it becomes odorless or has the odor of fresh grease or lard. The tank content eventually becomes a dark brown color with an earthy odor. This should be the normal operating condition of the facility. If the mixed liquor turns black or dark gray an odor similar to that of rotten eggs will develop. This indicates a lack of air and septic conditions, and air added to the system should be increased.

### Sludge Indices

The sludge volume index (SVI) combines the results of the settleability test with the suspended solids test to produce an indicator of the settling properties of activated sludge. The index is obtained by multiplying the milliliters of sludge in a liter graduate, after 30 minutes settling of the aeration tank liquor, by 1,000 and dividing the product by the concentration of suspended solids in the tank. An index value of 100 or less generally indicates the sludge has excellent settling properties and a treatment system effluent low in suspended solids should be obtained. Tank liquor having a sludge index of 200 will have poor settling characteristics and will confirm the need for corrective action, a need that should also be apparent from examination of the plant effluent.

The sludge density index (SDI) is the reciprocal of the SVI multiplied by 100, or is the suspended solids concentration of the activated sludge divided by 10, times the milliliters of sludge per liter of aeration tank liquor. The higher the SDI, the better the settling characteristics of the mixed liquor. Sludge with an SDI of one or more is considered a well settling sludge.

For example:

Total suspended solids of an activated sludge sample was 3200 mg/l and settleability test showed 400 ml of sludge in 30 minutes of settling.

$$\begin{array}{lcl} \text{SVI} & = & \frac{400 \times 1000}{3200} = 125 \\ \text{SDI} & = & \frac{3200}{400 \times 1000} = 0.8 \end{array}$$

### Oil and Grease

In the determination of oil and grease groups of substances with similar physical characteristics are determined quantitatively on the basis of their common solubility in an organic extracting solvent. Oil and grease is defined as any material recovered as a substance soluble in the solvent. It may also include other material extracted by the solvent from an acidified sample such as sulfur compounds, certain organic dyes, and chlorophyll for example. A variety of similar tests may be performed depending upon the type of oil and grease present in the sample. Refer to the latest edition of Standard Methods for more details.

### **Microscopic Examination**

Much can be learned about the condition of the treatment plant from routine microscopic examination of the activated sludge. The examination is normally made by placing one drop of mixed liquor on a glass slide, covering with a cover glass and observing at 100 x magnification or greater. When making microscopic examination, the major items of importance are: (1) the general character of the bacteria floc, and (2) the type of organisms present. Individual bacteria are not readily visible at 100 x magnification. The following things should be noted when examining the floc by microscope:

1. Small to medium dense floc masses with no dispersed bacteria are indicative of a well operating, normal activated sludge.
2. Small to medium dense floc masses with many dispersed bacteria may be indicative of toxic condition (some chemical that kills the bacteria has entered the treatment system) or a sudden increase in organic load.
3. The presence of filamentous (hair like) microorganisms, either bacteria or fungi, are indicative of a low pH, a low dissolved oxygen concentration or an increase in system loading. If industrial waste is being treated, it could mean low nitrogen content in the raw wastes. A deficiency of other essential elements is also a cause of this condition.

Microorganisms growing in the activated sludge are excellent indicators of the operational characteristics of the treatment plant. Identification of species is not important. It is usually only necessary to become familiar with four types of microorganisms, i.e., flagellated protozoa, stalked ciliated protozoa, free swimming ciliated protozoa and rotifers. Generally, a mixed population of microscopic organisms will exist in the activated sludge. The total number of organisms present is not of major importance. The think to look for is the relative numbers of the different forms; that is, are there more rotifers than free swimming ciliated protozoa present, etc. The following guide can be used for evaluating treatment plant performance:

- A. Predominately flagellated protozoa: relatively high organic content unstabilized.
- B. Predominately free swimming protozoa: moderately low organic level, 50 to 100 mg/15-day BOD.
- C. Predominately stalked ciliated protozoa: low organic level unstabilized, 10 to 20 mg/25-day BOD.
- D. Predominately rotifers: very low organic level unstabilized, 2 to 5 mg/15-day BOD.

### **Bacteriological Examinations**

Few small plants will have available equipment for bacteriological examinations since the time, laboratory personnel, and expensive special equipment is seldom provided. Since this facility discharges into Lake Taneycomo, which is used for recreation, bacteriological tests made on the treatment system effluent will need to be performed to check the efficiency of the UV disinfection system. If the plant personnel are unable to perform these tests, a qualified outside laboratory will need to be obtained. Tests to determine the total number of bacteria of all kinds per milliliter of effluent, and the number of more specific wastewater organisms per unit volume of effluent, can be made. Frequently, these tests will be made by the regulatory agency which has set a bacterial quality standard for the system effluent or outlet stream. Bacterial limit on the effluent is specified on the existing NPDES permit. The new MPDES permit should be consulted to determine exact testing requirements.

The system operator may be required to collect samples periodically in special containers provided by the regulatory agency and mail them to the regulatory agency laboratory.

### **Laboratory Equipment**

The operator should keep an inventory of laboratory equipment and order any additional equipment required to perform the required permit and operational testing.

### **Standard Methods for the Examination of Water and Wastewater**

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Phone: (301) 893-1894



**Missouri Department of Natural Resources  
Water Pollution Control Program**

**FORM S – SLUDGE REPORTING**

**INSTRUCTIONS:**

The attached form (FORM S) is to be used for submitting the annual sludge reporting as required under Standard Conditions Part III of the National Pollutant Discharge Elimination System (NPDES) Missouri State Operating Permit. This form is to be used only for domestic wastewater treatment sludges. It does not apply to industrial sludges.

Use the attached Form S as a master copy and make copies off of it as required for sludge reporting in subsequent years. You must sign and submit the form, even if no sludge was removed during the report period. The form must be signed by an appropriate official.

Complete the sections of the Form S that are applicable to your facility. Only the appropriate sections of Form S report have been mailed to you. Other sections will be mailed out upon request. See the table below for guidance.

All permittees	complete Section 1
Land application (LA)	complete Sections 2 & 3
Contract hauler (CH) PE > 150	complete Section 2 & 4
Contract hauler (CH) PE < 150	complete Section 4
Hauled to another facility (HT)	complete Section 4
Solid waste landfill (LF)	complete Section 4
Sludge disposal lagoon (SD)	complete Section 5
Incineration (IN)	complete Section 6
Sludge hauled to incinerator (IO)	complete Section 6

You must complete and submit Form S by January 28 of each year for the previous calendar year. Keep a copy for your records. Send the complete Form S to your Regional Office. See map included with form.

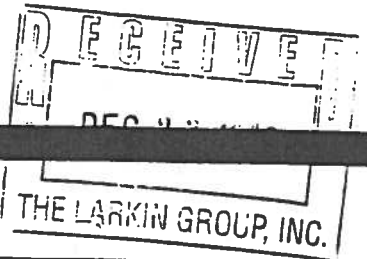
Your facility may also be required to obtain a separate EPA permit and submit reports directly to EPA. Contact EPA at the following address to determine the EPA's requirements for your facility:

Mr. John Dunn  
Regional Sludge Coordinator  
U.S. EPA Region VII  
Water Management Division  
726 Minnesota Avenue  
Kansas City, KS 66101

For assistance regarding this form, please contact your Regional MoDNR office or the Technical Assistance program at (800) 361-4827 or (573) 526-3176.



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER POLLUTION CONTROL PROGRAM  
**FORM S - SECTION 1. DOMESTIC SLUDGE REPORTING**



**GENERAL INFORMATION**

REPORTING PERIOD: (YEAR)

FACILITY NAME

CITY NAME

PERMIT NUMBER

COUNTY NAME

Instructions: See Instruction Sheet for directions.

**1. Sludge Production, including sludge received from others:**

ACTUAL DRY TONS/YEAR

ACTUAL POPULATION EQUIVALENT

**2. Sludge Treatment:**

- ☐ Anaerobic Digester      ☐ Aerobic Digester      ☐ Composting  
☐ Storage Tank      ☐ Air or Heat Drying  
☐ Lime Stabilization      ☐ Other, Describe: \_\_\_\_\_

**3. Sludge Use or Disposal: Complete the rest of this form only for the sections applicable to your method of sludge and biosolids use or disposal.**

- |  |                           |
|--|---------------------------|
| <input checked="" type="checkbox"/> All Permittees                 | Complete Section 1        |
| <input type="checkbox"/> Land Application (LA)                     | Complete Sections 2 and 3 |
| <input type="checkbox"/> Contract Hauler (CH) >150 PE              | Complete Sections 2 and 4 |
| <input type="checkbox"/> Contract Hauler (CH) <150 PE              | Complete Section 4        |
| <input type="checkbox"/> Hauled to another Treatment Facility (HT) | Complete Section 4        |
| <input type="checkbox"/> Solid Waste Landfill (LF)                 | Complete Section 4        |
| <input type="checkbox"/> Sludge Disposal Lagoon (SD)               | Complete Section 5        |
| <input type="checkbox"/> Incineration (IN)                         | Complete Section 6        |
| <input type="checkbox"/> Sludge Hauled to Incinerator (IO)         | Complete Section 6        |

**4. Certification:** I certify under penalty of law that the information contained in this report and attachments are true and correct. This determination has been made under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information used to determine these requirements have been met. I am aware that there are significant penalties for false certification, including the possibility of fine and imprisonment.

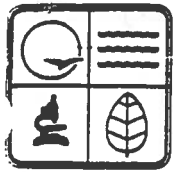
NAME

OFFICIAL TITLE

SIGNATURE

DATE

PHONE



# MISSOURI DEPARTMENT OF NATURAL RESOURCES

## DIVISION OF ENVIRONMENTAL QUALITY

### REGIONAL OFFICES

**Kansas City Regional Office**  
 500 NE Colbern Rd  
 Lee's Summit, MO 64086-4710  
 (816) 554-4100  
 FAX: (816) 554-4142

**Northeast Regional Office**  
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 Macon, MO 63552-2602  
 (660) 385-2129  
 FAX: (660) 385-6398

**Jefferson City Regional Office**  
 1511 Christy Dr.  
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 Jefferson City, MO 65102-0176  
 (573) 751-2729  
 FAX: (573) 751-0014

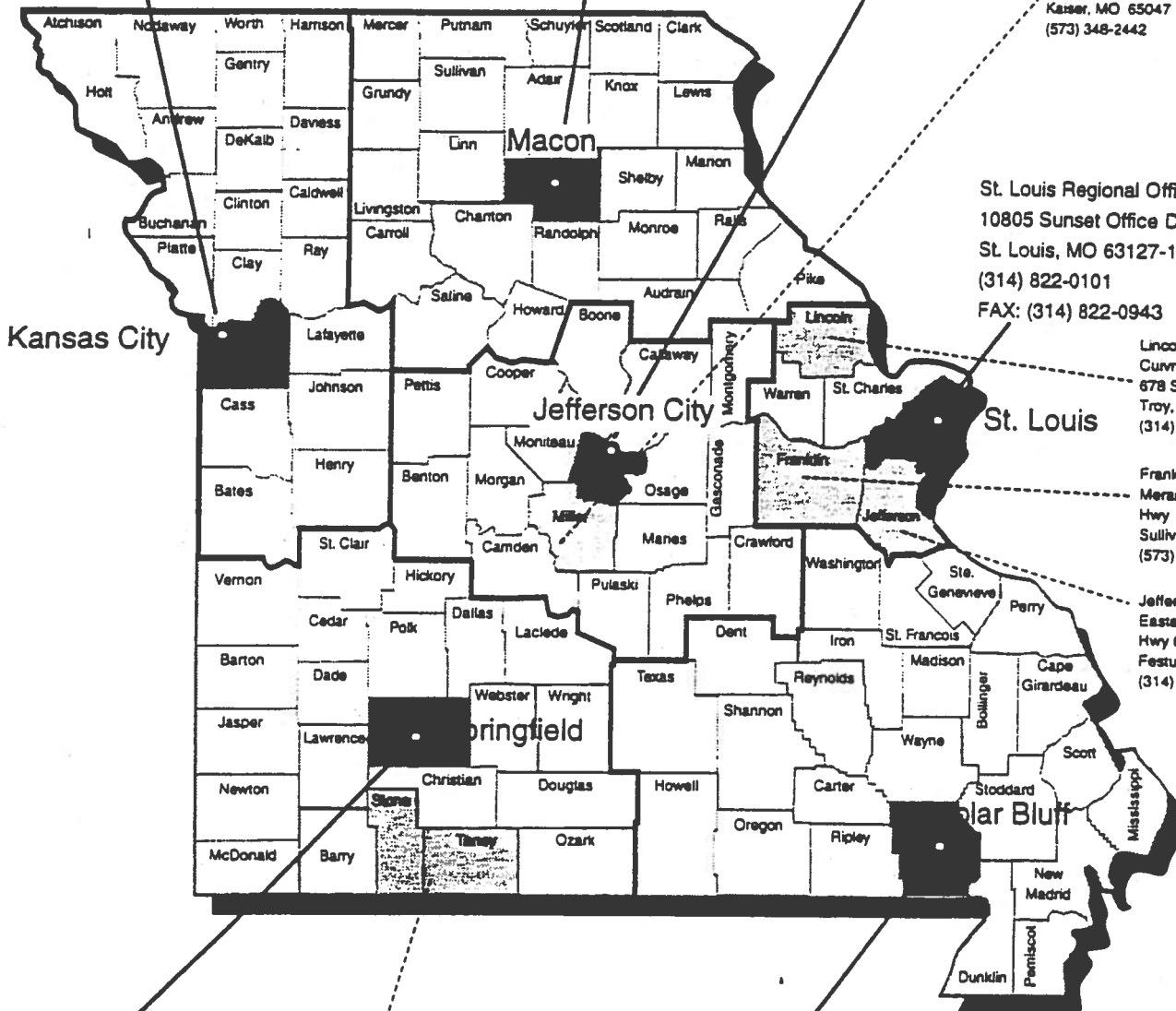
**Lake of the Ozarks Satellite Office**  
 Lee C. Fine Airport  
 Hwy 134  
 Kaiser, MO 65047  
 (573) 348-2442

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 10805 Sunset Office Drive  
 St. Louis, MO 63127-1017  
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 2037 State Hwy 165  
 Branson, MO 65616  
 (417) 337-9732

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 P.O. Box 1420  
 Poplar Bluff, MO 63901-1420  
 (573) 840-9750  
 FAX: (573) 840-9754



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER POLLUTION CONTROL PROGRAM

**FORM S - SECTION 2 - LABORATORY RESULTS - FORM SA**

**SLUDGE MONITORING RESULTS FOR METALS, NUTRIENTS, PATHOGENS AND VECTORS**

MIT NO:

REPORT PERIOD: (CALENDAR YEAR)

MO—

FACILITY NAME

Use this form to report sludge monitoring required under Missouri water pollution control permit (NPDES) Standard Conditions Part III dated Aug. 15, 1994. For a copy, contact the department at (573) 751-6825.

If the facility has a design population equivalent (P.E.) of 150 or less, treat the sludge generated as septage and consequently, no testing is required. See WQ 422 guide, *Land Application of Septage*, for further guidance.

Report all results on dry weight basis.

Attach copies of all laboratory results for the items below.

**A. MINIMUM MONITORING LIST FOR ALL PERMITTEES**

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM	NUMBER OF SAMPLES
TOTAL SOLIDS	%				
TOTAL ARSENIC	mg/kg				
TOTAL CADMIUM	mg/kg				
TOTAL CHROMIUM	mg/kg				
TOTAL COPPER	mg/kg				
TOTAL LEAD	mg/kg				
TOTAL MERCURY	mg/kg				
TOTAL MOLYBDENUM	mg/kg				
TOTAL NICKEL	mg/kg				
TOTAL SELENIUM	mg/kg				
TOTAL ZINC	mg/kg				

**B. ADDITIONAL MONITORING FOR LAND APPLICATION**

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM	NUMBER OF SAMPLES
TOTAL KJELDAHL NITROGEN	mg/kg				
TOTAL PHOSPHORUS AS P	mg/kg				
TOTAL POTASSIUM AS K	mg/kg				

If more than two dry tons of sludge per acre/year is applied complete the following:

NITRIC NITROGEN AS N	mg/kg				
AMMONIA NITROGEN AS N	mg/kg				
NITRATE NITROGEN AS N	mg/kg				

**FORM S - SECTION 2 - LABORATORY RESULTS - FORM SB**

## SLUDGE MONITORING RESULTS FOR PRIORITY POLLUTANTS AND OTHER SPECIAL TESTING

MIT NO:

REPORT PERIOD: (CALENDAR YEAR)

MO-

FACILITY NAME

**Report all results on dry weight basis.**

## F. PRIORITY POLLUTANTS

Report only those pollutants that were above detection limits. Do not repeat pollutants listed in section 2A. Attach additional sheets as needed

[illegible]

**G. OTHER SPECIAL MONITORING REQUIRED BY PERMIT**

Report results of any additional testing required under the Special Conditions section of your permit.

[illegible]



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER POLLUTION CONTROL PROGRAM  
**FORM S - SECTION 3. LAND APPLICATION**

REPORTING PERIOD: CALENDAR YEAR

FACILITY NAME

**3.00 Land Application - General**

This section is based on Missouri Water Pollution Control Permit Standard Conditions Part III dated Aug. 15, 1994. For a copy, contact the department at (573) 751-6825.

Complete this section if sludge or biosolids were land applied for beneficial use by permittee or by contract hauler under permittee authority.

3.01

☐ dry tons of sludge applied during the report period.

☐ average percent solids

If less than 12 percent solids: \_\_\_\_\_ total gallons for year

If 12 percent solids or greater: \_\_\_\_\_ cubic yards for year.

3.02 SLUDGE STORAGE PROVIDED

\_\_\_\_\_ cubic feet; \_\_\_\_\_ days of storage.

Number of days each month that sludge was land applied:

Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec

3.03 WHO APPLIES YOUR SLUDGE

Permittee personnel ☐ Yes ☐ No

Contract person ☐ Yes ☐ No

Other, describe: \_\_\_\_\_

**3.10 Applicability (Per Section H or Part III Standard Conditions)**

3.11 ARE THERE ANY LAND APPLICATION SITES FARTHER THAN 20 MILES FROM THE WASTEWATER TREATMENT FACILITY?

☐ Yes ☐ No If yes, a separate permit is required for those sites. Indicate permit numbers or submit new permit application for each site.

Permit numbers: \_\_\_\_\_

3.12 ARE ANY INDUSTRIAL SLUDGES LAND APPLIED BY THE PERMITTEE?

☐ Yes ☐ No If yes, complete the following: Permit No: \_\_\_\_\_

Type of Sludge \_\_\_\_\_ SIC Code \_\_\_\_\_

3.13 ARE ALTERNATE LIMITS OR EXCEPTIONS LISTED IN THE SPECIAL CONDITIONS SECTION OF THE PERMIT?

☐ Yes ☐ No If yes, attach explanation sheet.

3.14 IS SLUDGE RECEIVED FROM ANY OUT-OF-STATE GENERATORS?

☐ Yes ☐ No If this sludge is handled separately, complete separate Sections 2 and 3 of Form S for the out-of-state sludge.

**3.20 Pollutant Limitations**

3.21 ARE METALS WITHIN THE CEILING CONCENTRATION LIMIT?

☐ Yes ☐ No If no, attach explanation sheet.

3.22 ARE METALS WITHIN THE LOW METALS CONCENTRATIONS AND THE TOTAL OF ALL SLUDGE APPLICATIONS TO DATE (INCLUDING PREVIOUS YEARS) HAVE NOT EXCEEDED 500 DRY TONS/ACRE? ☐ Yes ☐ No Attach list of sites using Form SC.

3.23 IF YOU ANSWERED NO TO 3.22, COMPLETE THE FOLLOWING.

Have metals application rates reached any of the cumulative metals loadings? This is based on contributions from all historical sludge loadings, including industrial sludges.

☐ Yes ☐ No Attach a list of sites using Form SD.

Soil test results for metals may be used if historical use is not known. Test metals concentration in parts per million (ppm) dry weight for the top six inches of soil and calculate pounds per acre using this formula:

ppm (dry wt) in soil x 2 = pounds per acre for 6 inches soil depth.

**3.40 Operational Standards for Class B Biosolids (See WQ 424.)**

- ☐ Class B pathogen reduction requirements were met by either fecal coliform limits under section 2D or a PSRP listed in WQ 424 Table 2. Attach supporting data and indicate process option used.
- ☐ Class B pathogen requirements not currently met. Attach explanation and schedule of compliance.

**3.41 VECTOR ATTRACTION REDUCTION REQUIREMENTS WERE MET.**

- ☐ Yes ☐ No

**3.50 Monitoring Frequency (Per WQ 424 - Monitoring Requirements for Biosolids Land Application.)**

Attach a summary of the monitoring results on Form SA.

**3.51 SLUDGE TESTING FOR METALS WAS PERFORMED:**

- ☐ once/year ☐ once/six months
- ☐ once/quarter ☐ once/month
- ☐ once/week ☐ once/100 dry tons removed from lagoon.
- ☐ other, specify: \_\_\_\_\_

**3.52 PERMITTEE IS REQUIRED TO HAVE AN APPROVED PRETREATMENT PROGRAM.**

- ☐ Yes ☐ No If Yes, attach Form SB.

**3.53 TOTAL SOLIDS TESTING WAS PERFORMED AT LEAST ONCE PER DAY DURING LAND APPLICATION PERIODS?**

- ☐ Yes ☐ No If No, attach explanation.

**3.54 NITROGEN TESTING WAS PERFORMED PER THE FREQUENCY IN WQ 423.**

This frequency is \_\_\_\_\_ ☐ Yes ☐ No If No, attach explanation.

**3.55 TOTAL PHOSPHORUS AND TOTAL POTASSIUM WERE TESTED AT THE SAME FREQUENCY REQUIRED FOR METALS AS INDICATED IN WQ 423.**

- ☐ Yes ☐ No If No, attach explanation.

SOIL TESTING FOR PH AND CATION EXCHANGE CAPACITY (CEC) AND AVAILABLE PHOSPHORUS HAS BEEN CONDUCTED WITHIN THE LAST FIVE YEARS.

- ☐ Yes ☐ No If No, attach explanation.

**3.57 WAS ANY ADDITIONAL SLUDGE OR SOIL TESTING REQUIRED UNDER THE SPECIAL CONDITIONS SECTION OF YOUR WATER POLLUTION CONTROL (NPDES) PERMIT?**

- ☐ Yes ☐ No If Yes, attach a summary using Form SB.

PERMIT NO

REPORT PERIOD: CALENDAR YEAR

FACILITY NAME

**3.60 Certification for Land Application**

Check all that apply.

I certify under penalty of law that

- ☐ records on testing, and pollutant loadings, as listed above in Section 2, have been kept in accordance with 40 CFR 503.17.
- ☐ the management practices, as listed above in Section 2, have been met in accordance with 40 CFR 503.14.
- ☐ the Class B pathogen requirements and the site restrictions, as listed above in Section 2, have been met in accordance with 40 CFR 503.15 and 503.32.
- ☐ one of the vector attraction requirements, as listed above in Section 2, have been met in accordance with 40 CFR 503.15 and 503.33.

This determination has been made under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information used to determine these requirements have been met. I am aware that there are significant penalties for false certification, including the possibility of fine and imprisonment.

OFFICIAL TITLE

SIGNATURE

DATE



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER POLLUTION CONTROL PROGRAM

**FORM SD - CUMULATIVE METAL LOADINGS FOR LAND APPLICATION OF BIOSOLIDS**

Use this form for application sites that have received biosolids that exceed the low metals concentrations or have exceeded a cumulative site loading of 500 dry tons/acre of biosolids per Section 3.22 of Form S. Enter the site number for each field based on the site maps on file at the facility. Attach additional copies of this sheet as needed.

PERMIT NO.  MO-	REPORT PERIOD: CALENDAR YEAR
-----------------------	------------------------------

FACILITY NAME
---------------

SITE NO.	LAND OWNERS NAME
----------	------------------

LEGAL _____ 1/4, _____ 1/4, SEC _____, T _____, R _____, COUNTY _____
--

BIOSOLIDS _____ dt/ac/yr _____ acres	NITROGEN _____ lbs/ac/yr (TKN OR PAN)
---	--

CROPS GROWN
-------------

PARAMETER	UNITS	PREVIOUS TOTAL	CUMULATIVE LOADINGS		PERCENT OF** ALLOWED LOAD
			ADDED THIS YEAR	CURRENT TOTAL	
BIOSOLIDS	TON/ACRE*				
TOTAL ARSENIC	LBS/ACRE*				%
TOTAL CADMIUM	LBS/ACRE*				%
TOTAL CHROMIUM	LBS/ACRE*				%
TOTAL COPPER	LBS/ACRE*				%
TOTAL LEAD	LBS/ACRE*				%
TOTAL MERCURY	LBS/ACRE*				%
TOTAL MOLYBDENUM	LBS/ACRE*				%
TOTAL NICKEL	LBS/ACRE*				%
TOTAL SELENIUM	LBS/ACRE*				%
TOTAL ZINC	LBS/ACRE*				%
SOIL pH (SALT TEST)	pH UNITS				%
SOIL CEC	meg/100g SOIL				%

\*Report as dry weight.

\*\*Report the percentage of the allowable cumulative loading for the site based on the limits in Permit Standard Conditions Part III. Round to the nearest 5 percent. If less than 10 percent, report as <10.





MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER POLLUTION CONTROL PROGRAM  
**FORM S - SECTION 4. SLUDGE HAULING**

PERMIT NO.:

REPORTING PERIOD: CALENDAR YEAR

FACILITY NAME

Complete this section if the sludge generator or contract hauler transports sludge to another wastewater treatment facility or sludge disposal facility. Applicable sludge requirements are listed under Part II Standard Conditions.

Show the applicable water pollution control permit number (MO-) under 4.14 and 4.24. If disposal is at a landfill, surface disposal facility, or sludge disposal lagoon, the solid waste disposal permit number (SW) must also be given.

If the facility has a design population equivalent (P.E.) of 150 or less, treat the sludge generated as septage and consequently, no testing is required. See WQ 422 guide, *Land Application of Septage*, for further guidance.

**4.10 Person Responsible for Hauling Sludge to Disposal Facility**

4.11 HAULER NAME

4.12 CONTACT PERSON

CONTACT ADDRESS

4.14 PHONE

PERMIT NO:

MO-

SW

**4.20 Person Responsible for Final Sludge Disposal**

4.21 FACILITY NAME

4.22 CONTACT PERSON

4.23 CONTACT ADDRESS

4.24 PHONE

PERMIT NO:

MO-

SW

SLUDGE DISPOSAL METHOD

4.26 LEGAL

\_\_\_\_\_ 1/4, \_\_\_\_\_ 1/4, SEC \_\_\_\_\_ T \_\_\_\_\_ R \_\_\_\_\_ COUNTY \_\_\_\_\_

## INSTRUCTIONS FOR FILLING OUT ANNUAL REPORT FORM S - DOMESTIC SLUDGE

### GENERAL

The attached report form (FORM S) is to be used for submitting the annual sludge report as required under Standard Conditions Part III of the Missouri State Operating Permit (NPDES). This form is to be used only for domestic wastewater sludges. It does NOT apply to industrial sludges.

Use the attached Form S as a master copy and make copies off of it as required for sludge reporting in subsequent years. This form must be signed by an appropriate official. Keep a copy for your records. Send the completed form S to your Regional Office (see map on reverse for address).

### APPLICABILITY

Mechanical Wastewater Treatment Facilities must sign and submit the form, even if no sludge was removed during the report period. You must complete and submit Form S by Jan. 28 for each year for the previous calendar year.

Wastewater treatment lagoons need to submit the Form S report ONLY when sludge is removed from the lagoon. Complete and submit the Form S by Jan. 28 for sludge removed during the previous calendar year.

Complete the sections of the Form S that are applicable to your facility. See the table below for guidance.

All permittees	Complete Section 1
Land Application (LA)	Complete Sections 2 and 3
Contract Hauler (CH) >150 PE	Complete Sections 2 and 4
Contract Hauler (CH) <150 PE	Complete Section 4
Hauled to another Treatment Facility (HT)	Complete Section 4
Solid Waste Landfill (LF)	Complete Section 4
Sludge Disposal Lagoon (SD)	Complete Section 5
Incineration (IN)	Complete Section 6
Sludge Hauled to Incinerator (IO)	Complete Section 6

### ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIREMENTS

Your facility may also be required to obtain a separate sludge permit from the EPA and to submit reports directly to EPA. Contact the EPA at the following address to determine the EPA's requirements for your facility.

Mr. John Dunn  
Regional Sludge Coordinator  
U.S. EPA Region VII  
Water Management Division  
726 Minnesota Ave.  
Kansas City, KS 66101  
Phone: (913) 551-7594  
FAX: (913) 551-7765

### FOR QUESTIONS

For assistance regarding this form or other sludge issues, please contact your Regional Office (see map on reverse) or contact the Technical Assistance Program at (800) 361-4827 or (573) 526-6627.



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER POLLUTION CONTROL PROGRAM  
**FORM S - SECTION 5. SLUDGE DISPOSAL LAGOON**

PERMIT NO.:

REPORTING PERIOD: CALENDAR YEAR

FACILITY NAME

Complete this section if sludge has been left for more than two years in a sludge lagoon or inactive wastewater treatment lagoon and the lagoon has not been closed in accordance with a closure plan approved by the department.

Applicable sludge requirements are listed under Part III Standard Conditions.

Show both the water pollution control permit number (MO-) and the solid waste disposal permit number (SW) under 5.10.

**5.10 Person Responsible for Final Sludge Disposal**

5.11 FACILITY NAME

5.12 CONTACT PERSON

5.13 CONTACT ADDRESS

5.14 PHONE

PERMIT NO: MO-

SW

**5.20 Sludge Disposal Lagoon Location**

TOWNSHIP

\_\_\_\_\_ 1/4, \_\_\_\_\_ 1/4, SEC \_\_\_\_\_, T \_\_\_\_\_, R \_\_\_\_\_, COUNTY \_\_\_\_\_

**5.30 Lagoon Description**

- 5.31 ☐ Sludge lagoon that has received sludge during the report period.
- 5.32 ☐ Sludge lagoon that did not receive sludge during the report period but has not been closed in accordance with a closure plan approved by the department.
- 5.33 ☐ Inactive wastewater treatment lagoon that no longer receives wastewater or sludge but has not been closed in accordance with a closure plan approved by the department.

5.34 SURFACE ACRES OF LAGOON

FEET OF SLUDGE DEPTH

5.35 CUBIC FEET (DESIGN)

CUBIC FEET SLUDGE (CURRENT)

5.36 AVERAGE % SOLIDS OF SLUDGE IN THE LAGOON

DAYS OF STORAGE

**5.40 Groundwater Protection**

5.41 DATE OF LAGOON CONSTRUCTION (APPROXIMATE IF NOT KNOWN)

5.42 GEOLOGIC REPORT

Attach copy of recent (Since July 1, 1993) geologic evaluation report by the department's Division of Geology and Land Survey (DGLS).

5.43 LAGOON SEAL - THE LAGOON SEAL MUST MEET BOTH OF THE FOLLOWING REQUIREMENTS:

- ☐ Lagoon bottom and side seal meets current sealing requirements of  $10^{-7}$  cm/sec per 10 CSR 20-8.200(6)(C) or 8.020(13)(A).
- ☐ Lagoon seal meets requirements for a composite liner per Solid Waste Management Law and regulations under 10 CSR 80.

GROUNDFWATER MONITORING WELLS

- ☐ Monitoring wells installed and approved by DGLS.

Attach monitoring well test results for parameters listed under Section A of Form SA, plus nitrate nitrogen as N, and any other groundwater testing required by the permit per 10 CSR 20-7.031.

- ☐ Monitoring wells not installed.

## INSTRUCTIONS FOR FILLING OUT ANNUAL REPORT FORM S - DOMESTIC SLUDGE

### GENERAL

The attached report form (**FORM S**) is to be used for submitting the annual sludge report as required under Standard Conditions Part II of the Missouri State Operating Permit (NPDES). This form is to be used only for domestic wastewater sludges. It does NOT apply to industrial sludges.

Use the attached **Form S** as a master copy and make copies off of it as required for sludge reporting in subsequent years. This form must be signed by an appropriate official. Keep a copy for your records. Send the completed form **S** to your Regional Office (see map on reverse for address).

### APPLICABILITY

**Mechanical Wastewater Treatment Facilities** must sign and submit the form, even if no sludge was removed during the report period. You must complete and submit Form S by Jan. 28 for each year for the previous calendar year.

**Wastewater treatment lagoons** need to submit the Form S report **ONLY** when sludge is removed from the lagoon. Complete and submit the Form S by Jan. 28 for sludge removed during the previous calendar year.

Complete the sections of the Form S that are applicable to your facility. See the table below for guidance.

All permittees	Complete Section 1
Land Application (LA)	Complete Sections 2 and 3
Contract Hauler (CH) >150 PE	Complete Sections 2 and 4
Contract Hauler (CH) <150 PE	Complete Section 4
Hauled to another Treatment Facility (HT)	Complete Section 4
Solid Waste Landfill (LF)	Complete Section 4
Sludge Disposal Lagoon (SD)	Complete Section 5
Incineration (IN)	Complete Section 6
Sludge Hauled to Incinerator (IO)	Complete Section 6

### ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIREMENTS

Your facility may also be required to obtain a separate sludge permit from the EPA and to submit reports directly to EPA. Contact the EPA at the following address to determine the EPA's requirements for your facility.

Mr. John Dunn  
Regional Sludge Coordinator  
U.S. EPA Region VII  
Water Management Division  
726 Minnesota Ave.  
Kansas City, KS 66101  
Phone: (913) 551-7594  
FAX: (913) 551-7765

### FOR QUESTIONS

For assistance regarding this form or other sludge issues, please contact your Regional Office (see map on reverse) or contact the Technical Assistance Program at (800) 361-4827 or (573) 526-6627.



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER POLLUTION CONTROL PROGRAM  
**FORM S - SECTION 6. SLUDGE INCINERATION**

PERMIT NO.:

REPORTING PERIOD: CALENDAR YEAR

FACILITY NAME

Complete this section if you operate a sewage sludge incinerator. If you haul your sludge to a regional incineration facility, do not complete this form; use Form S - Section 4. Applicable sludge requirements are listed under Part III Standard Conditions.

Show both the water pollution control permit number (MO-), the solid waste disposal permit number (SW), and the Air Pollution Control Permit (AP) under 6.12.

**6.10 Sludge Incinerator Permits**

6.12 PERMIT NUMBER:

MO-

SW

AP

6.13 THE INCINERATOR EMISSIONS LIMITATIONS AND OPERATING REQUIREMENTS MET THE REQUIREMENTS IN 40 CFR 503 SUBPART E.

☐ YES

☐ NO

ATTACH TESTING DATA REQUIRED BY EPA PERMIT.

**6.20 Sludge Monitoring**

☐ Sludge or ash monitoring required by State permit. Attach copies of laboratory results.

**SLUDGE MONITORING DATA**

PARAMETER	UNITS	AVERAGE	MINIMUM	MAXIMUM	NUMBER OF SAMPLES
ARSENIC					
CADMIUM					
CHROMIUM					
LEAD					
NICKEL					

**6.30 Person Responsible for Final Ash Disposal**

- ☐ Ash is disposed on site.  
☐ Ash is disposed off site by the generator.  
☐ Ash is disposed at another permitted disposal facility.

6.31 DISPOSAL FACILITY NAME

6.32 CONTACT PERSON

6.33 PHONE

PERMIT NO.

MO-

SW

AP

6.35 ASH DISPOSAL METHOD

6.36 LEGAL

\_\_\_\_\_ 1/4, \_\_\_\_\_ 1/4, SEC \_\_\_\_\_ T \_\_\_\_\_ R \_\_\_\_\_ COUNTY \_\_\_\_\_

## INSTRUCTIONS FOR FILLING OUT ANNUAL REPORT FORM S - DOMESTIC SLUDGE

### GENERAL

The attached report form (FORM S) is to be used for submitting the annual sludge report as required under Standard Conditions Part III of the Missouri State Operating Permit (NPDES). This form is to be used only for domestic wastewater sludges. It does not apply to industrial sludges.

Use the attached Form S as a master copy and make copies off of it as required for sludge reporting in subsequent years. This form must be signed by an appropriate official. Keep a copy for your records. Send the completed Form S to your Regional Office (see map on reverse for address).

### APPLICABILITY

Mechanical Wastewater Treatment Facilities must sign and submit the form, even if no sludge was removed during the report period. You must complete and submit Form S by Jan. 28 for each year for the previous calendar year.

Wastewater treatment lagoons need to submit the Form S report ONLY when sludge is removed from the lagoon. Complete and submit the Form S by Jan. 28 for sludge removed during the previous calendar year.

Complete the sections of the Form S that are applicable to your facility. See the table below for guidance.

All permittees	Complete Section 1
Land Application (LA)	Complete Sections 2 and 3
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Sludge Disposal Lagoon (SD)	Complete Section 5
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### ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIREMENTS

Your facility may also be required to obtain a separate sludge permit from the EPA and to submit reports directly to EPA. Contact the EPA at the following address to determine the EPA's requirements for your facility.

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### FOR QUESTIONS

For assistance regarding this form or other sludge issues, please contact your Regional Office (see map on reverse) or contact the Technical Assistance Program at (800) 361-4827 or (573) 526-6627.

2

[illegible]

Name \_\_\_\_\_ NPDES Permit No. \_\_\_\_\_ County \_\_\_\_\_

## FORM E-11 -- ANNUAL SUMMARY REPORT

[illegible]

- Indicate months spread for each field. Example April, June, October.

Attach a copy of this report to the NPDES permit Discharge Monitoring Report at the end of each year along









# MISSOURI DEPARTMENT OF NATURAL RESOURCES

## DIVISION OF ENVIRONMENTAL QUALITY

### REGIONAL OFFICES

**Kansas City Regional Office**  
 500 NE Colbern Rd  
 Lee's Summit, MO 64086-4710  
 (816) 554-4100  
 FAX: (816) 554-4142

**Northeast Regional Office**  
 1709 Prospect Dr.  
 Macon, MO 63552-2602  
 (660) 385-2129  
 FAX: (660) 385-6398

**Jefferson City Regional Office**  
 1511 Christy Dr.  
 P.O. Box 176  
 Jefferson City, MO 65102-0176  
 (573) 751-2729  
 FAX: (573) 751-0014

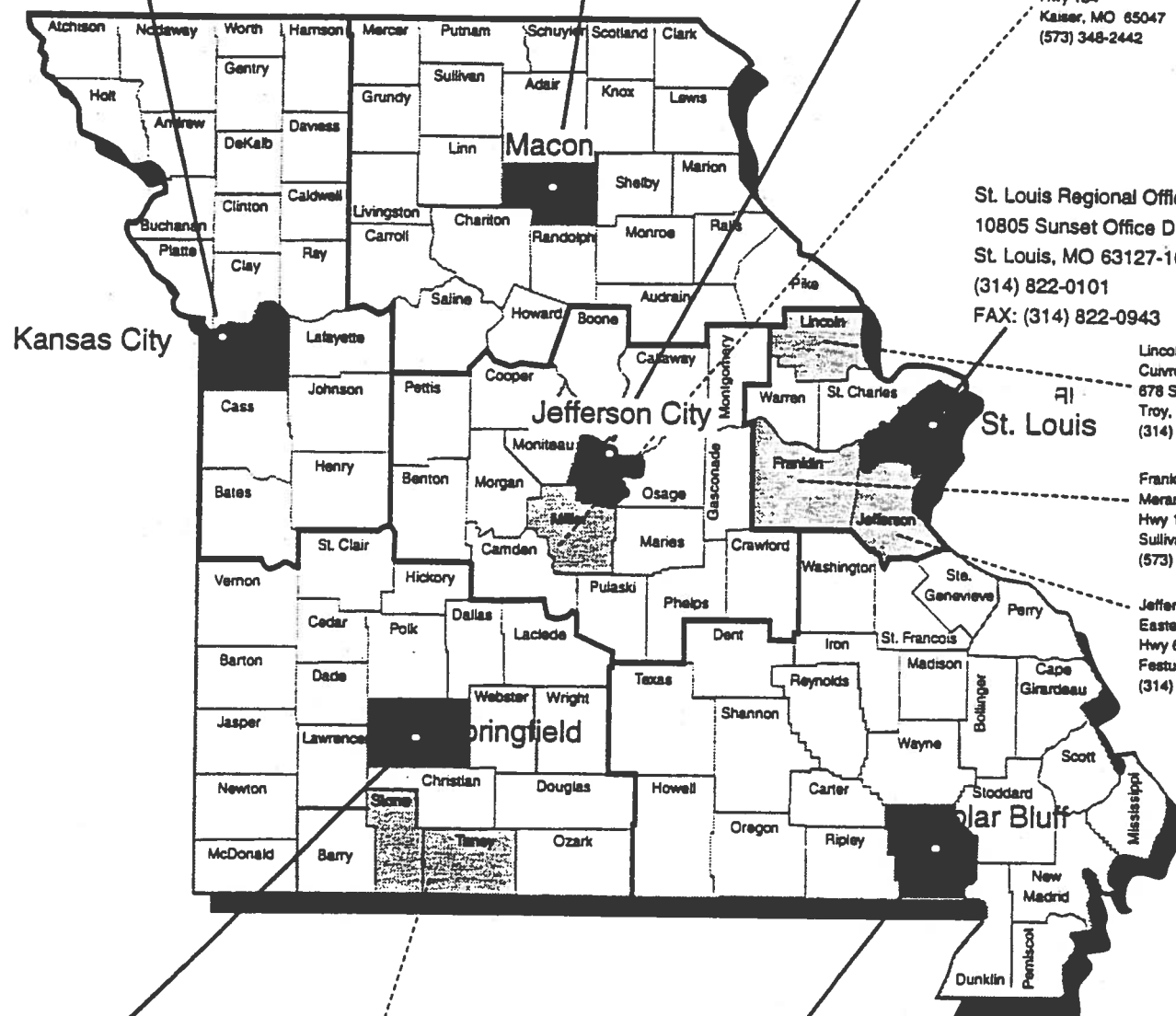
**Lake of the Ozarks Satellite Office**  
 Lee C. Fine Airport  
 Hwy 134  
 Kaiser, MO 65047  
 (573) 348-2442

**St. Louis Regional Office**  
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 948 Lester Street  
 P.O. Box 1420  
 Poplar Bluff, MO 63901-1420  
 (573) 840-9750  
 FAX: (573) 840-9754

**6.40 Ash Storage Ponds**

- ☐ Sludge incineration ash is not stored in earthen structures.
- ☐ Sludge incineration ash is stored in earthen structures. Complete all parts on page two.

6.41 LEGAL

\_\_\_\_\_ 1/4, \_\_\_\_\_ 1/4, SEC \_\_\_\_\_ T \_\_\_\_\_ R \_\_\_\_\_ COUNTY \_\_\_\_\_

6.42

- ☐ Ash pond has received ash during the report period.

6.43

- ☐ Ash pond did not receive ash during the report period but has not been closed in accordance with a closure plan approved by \_\_\_\_\_ department.

6.44

\_\_\_\_\_ surface acres of ash pond. \_\_\_\_\_ feet of ash depth.

6.45

\_\_\_\_\_ cubic feet pond (design). \_\_\_\_\_ cubic feet ash (current).

6.46

\_\_\_\_\_ average percent solids of ash in pond.

6.47 DATE OF ASH POND CONSTRUCTION (APPROXIMATE IF NOT KNOWN).

6.48 GEOLOGIC REPORT FOR ASH POND

Attach copy of current (since July 1, 1993) geologic evaluation report by the Department of Natural Resources, Division of Geology and Land Survey (DGLS).

6.49 ASH POND SEAL

The ash pond must meet one of the following requirements:

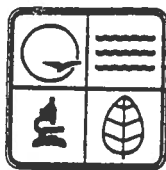
- ☐ Lagoon bottom and side seal meets current sealing requirements of  $10^{-7}$  cm/sec per 10 CSR 20-8.200(6)(C) or 8.020(13)(A).
- ☐ Lagoon seal meets requirements for a composite liner per Solid Waste Management Law and regulations under 10 CSR 80.

If above seal requirement is not met, attach explanation.

**6.50 Alternate Limits**

ARE ALTERNATE LIMITS OR EXCEPTIONS LISTED IN THE SPECIAL CONDITIONS SECTION OF THE WASTEWATER TREATMENT FACILITY PERMIT OR SLUDGE GENERATOR PERMIT?

- ☐ YES ☐ NO If yes, attach explanation sheet.



# MISSOURI DEPARTMENT OF NATURAL RESOURCES

## DIVISION OF ENVIRONMENTAL QUALITY

### REGIONAL OFFICES

**Kansas City Regional Office**  
500 NE Colbern Rd  
Lee's Summit, MO 64086-4710  
(816) 554-4100  
FAX: (816) 554-4142

**Northeast Regional Office**  
1709 Prospect Dr.  
Macon, MO 63552-2602  
(660) 385-2129  
FAX: (660) 385-6398

**Jefferson City Regional Office**  
1511 Christy Dr.  
P.O. Box 176  
Jefferson City, MO 65102-0176  
(573) 751-2729  
FAX: (573) 751-0014

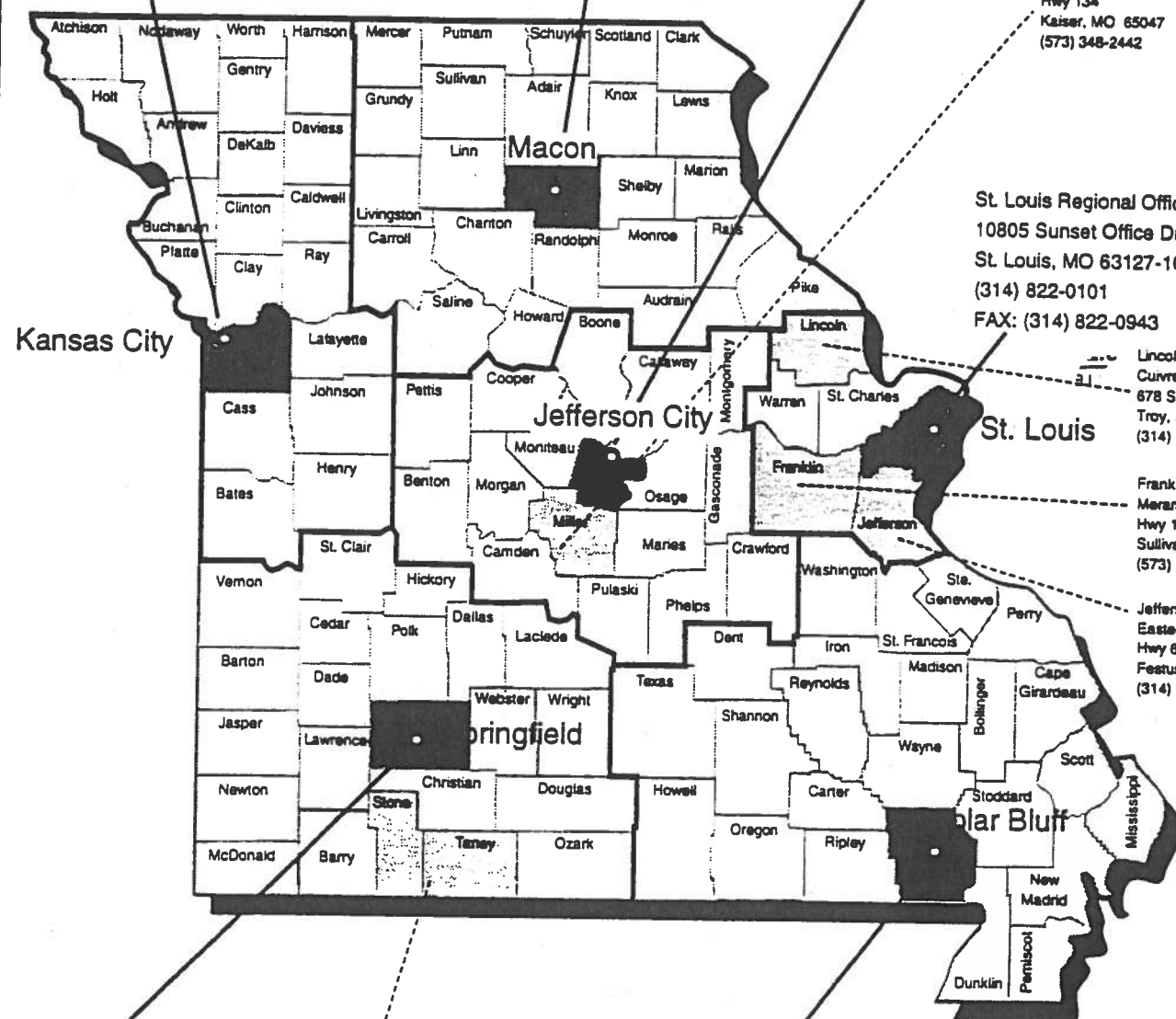
**Lake of the Ozarks Satellite Office**  
Lee C. Fine Airport  
Hwy 134  
Kaiser, MO 65047  
(573) 348-2442

**St. Louis Regional Office**  
10805 Sunset Office Drive  
St. Louis, MO 63127-1017  
(314) 822-0101  
FAX: (314) 822-0943

**Lincoln County Satellite Office**  
Curve River State Park  
678 State Rt. 147  
Troy, MO 63379  
(314) 528-4779

**Franklin County Satellite Office**  
Meramec State Park  
Hwy 185 S.  
Sullivan, MO 63080  
(573) 880-4308

**Jefferson County Satellite Office**  
Eastern District Parks Office  
Hwy 61  
Festus, MO 63028  
(314) 937-3697



**Southwest Regional Office**  
2040 W. Woodland  
Springfield, MO 65807-5912  
(417) 891-4300  
FAX: (417) 891-4399

**Taney / Stone County Satellite Office**  
Table Rock State Park  
2037 State Hwy 165  
Branson, MO 65616  
(417) 337-9732

**Southeast Regional Office**  
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P.O. Box 1420  
Poplar Bluff, MO 63901-1420  
(573) 840-9750  
FAX: (573) 840-9754

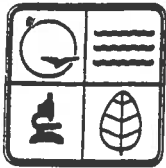
#### 5.50 Sludge Monitoring

- ☐ Attach Form SA for sludge monitoring.
- ☐ If pretreatment, Form SB must also be attached.

#### 5.60 Operating Requirements

Complete those that apply for 5.61 through 5.63.

- 5.61 Solid waste disposal permit (landfill permit) and water pollution control (NPDES) sludge disposal permit will be obtained by \_\_\_\_\_ (date).
- 5.62 Sludge will be removed from the lagoon by \_\_\_\_\_ Starting date.  
\_\_\_\_\_ Ending date.
- ☐ Lagoon closed by pushing in the berms and grading and seeding.
  - ☐ Lagoon used for storage only and accumulated sludge cleaned out every two years.
  - ☐ Lagoon closed by mixing sludge with equal parts of earth and pushing in the berms. The sludge and soil mixture shall not exceed the cumulative agricultural loading for nitrogen and metals (see WQ 425 and 429 guides).
- 5.63 Are alternate limits or exceptions listed in the Special Conditions section of the water pollution control (NPDES) permit?
- ☐ Yes      ☐ No      If yes, attach explanation sheet.



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Kansas City

Jefferson City

St. Louis

Springfield

Poplar Bluff

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**4.30 Sludge Removal from Treatment Facility****4.31 CAPACITY OF SLUDGE HOLDING STRUCTURES**

Sludge storage provided: \_\_\_\_\_ gallons.

DAYS OF STORAGE

ee!

AVERAGE PERCENT SOLIDS OF SLUDGE

☐ No sludge storage is provided**4.32 Sludge hauled for disposal during the report period.**

DRY TONS

CUBIC FEET

GALLONS

**4.33 Number of dry tons or gallons hauled each month from the wastewater treatment facility:**

JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.

If sludge hauled was more than the sludge holding capacity, attach explanation.

**4.40 Sludge Monitoring (Per Subsection J of Part III Standard Conditions)**☐ 4.41 If the receiving facility is a permitted facility, then it is responsible for testing and submitting section 2.☐ 4.42 If the receiving facility is not a permitted facility, then the generator is responsible for testing and completing section 2.**4.50 Sludge Disposal Requirements****4.51** If the disposal facility listed under 4.20 does not have a sludge disposal permit, the wastewater treatment facility or sludge generator shall submit detailed information on sludge disposal:☐ Attach completed Section 3 of Form S, if sludge is land applied.☐ Attach sheets providing the information listed under section K of Part III Special Conditions, if sludge is not land applied.**4.52** Are alternate limits or exceptions listed in the Special Conditions section of the wastewater treatment facility permit or sludge generator permit?☐ Yes ☐ No If yes, attach explanation sheet.



## INSTRUCTIONS FOR FILLING OUT ANNUAL REPORT FORM S - DOMESTIC SLUDGE

### GENERAL

The attached report form (FORM S) is to be used for submitting the annual sludge report as required under Standard Conditions Part III of the Missouri State Operating Permit (NPDES). This form is to be used only for domestic wastewater sludges. It does not apply to industrial sludges.

Use the attached Form S as a master copy and make copies off of it as required for sludge reporting in subsequent years. This form must be signed by an appropriate official. Keep a copy for your records. Send the completed Form S to your Regional Office (see map on reverse for address).

### APPLICABILITY

Mechanical Wastewater Treatment Facilities must sign and submit the form, even if no sludge was removed during the report period. You must complete and submit Form S by Jan. 28 for each year for the previous calendar year.

Wastewater treatment lagoons need to submit the Form S report ONLY when sludge is removed from the lagoon. Complete and submit the Form S by Jan. 28 for sludge removed during the previous calendar year.

Complete the sections of the Form S that are applicable to your facility. See the table below for guidance.

All permittees	Complete Section 1
Land Application (LA)	Complete Sections 2 and 3
Contract Hauler (CH) >150 PE	Complete Sections 2 and 4
Contract Hauler (CH) <150 PE	Complete Section 4
Hauled to another Treatment Facility (HT)	Complete Section 4
Solid Waste Landfill (LF)	Complete Section 4
Sludge Disposal Lagoon (SD)	Complete Section 5
Incineration (IN)	Complete Section 6
Sludge Hauled to Incinerator (IO)	Complete Section 6

### ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIREMENTS

Your facility may also be required to obtain a separate sludge permit from the EPA and to submit reports directly to EPA. Contact the EPA at the following address to determine the EPA's requirements for your facility.

Mr. John Dunn  
Regional Sludge Coordinator  
U.S. EPA Region VII  
Water Management Division  
726 Minnesota Ave.  
Kansas City, KS 66101  
Phone: (913) 551-7594  
FAX: (913) 551-7765

### FOR QUESTIONS

For assistance regarding this form or other sludge issues, please contact your Regional Office (see map on reverse) or contact the Technical Assistance Program at (800) 361-4827 or (573) 526-6627.



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER POLLUTION CONTROL PROGRAM

FORM SC - LAND APPLICATION OF BIOSOLIDS WITH LOW METALS CONCENTRATIONS

Use this form for application sites that have received biosolids with low metal(s) concentrations per Section 3.22 of Form S. Enter the site number for each field based on the site maps on file at the facility. Report biosolids application rate in dry tons per acre per year (dt/ac/yr). Attach additional copies of this sheet as needed.

PERMIT NO.  MO-		REPORT PERIOD: CALENDAR YEAR	
FACILITY NAME			
SITE NO.		OWNERS NAME	
LEGAL ____ 1/4, ____ 1/4, SEC _____, T _____, R _____, COUNTY _____			
BIOSOLIDS ____ dt/ac/yr ____ acres		NITROGEN ____ lbs/ac/yr (TKN OR PAN)	
CROPS GROWN		SOIL pH	
SITE NO.		OWNERS NAME	
LEGAL ____ 1/4, ____ 1/4, SEC _____, T _____, R _____, COUNTY _____			
BIOSOLIDS ____ dt/ac/yr ____ acres		NITROGEN ____ lbs/ac/yr (TKN OR PAN)	
CROPS GROWN		SOIL pH	
SITE NO.		OWNERS NAME	
LEGAL ____ 1/4, ____ 1/4, SEC _____, T _____, R _____, COUNTY _____			
BIOSOLIDS ____ dt/ac/yr ____ acres		NITROGEN ____ lbs/ac/yr (TKN OR PAN)	
CROPS GROWN		SOIL pH	
SITE NO.		OWNERS NAME	
LEGAL ____ 1/4, ____ 1/4, SEC _____, T _____, R _____, COUNTY _____			
BIOSOLIDS ____ dt/ac/yr ____ acres		NITROGEN ____ lbs/ac/yr (TKN OR PAN)	
CROPS GROWN		SOIL pH	
SITE NO.		OWNERS NAME	
LEGAL ____ 1/4, ____ 1/4, SEC _____, T _____, R _____, COUNTY _____			
BIOSOLIDS ____ dt/ac/yr ____ acres		NITROGEN ____ lbs/ac/yr (TKN OR PAN)	
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SITE NO.		OWNERS NAME	
LEGAL ____ 1/4, ____ 1/4, SEC _____, T _____, R _____, COUNTY _____			
BIOSOLIDS ____ dt/ac/yr ____ acres		NITROGEN ____ lbs/ac/yr (TKN OR PAN)	
CROPS GROWN		SOIL pH	
SITE NO.		OWNERS NAME	
LEGAL ____ 1/4, ____ 1/4, SEC _____, T _____, R _____, COUNTY _____			
BIOSOLIDS ____ dt/ac/yr ____ acres		NITROGEN ____ lbs/ac/yr (TKN OR PAN)	
CROPS GROWN		SOIL pH	

### 3.30 Management Practices

#### 3.31 NITROGEN LIMITATIONS

Which of the following nitrogen approaches was used?

Sludge applied up to two dry tons/acre/year.

☐ Yes ☐ No

Plant Available Nitrogen (PAN) approach.

☐ Yes ☐ No

\_\_\_\_\_ Number of composite samples. Results for PAN in mg/kg dry weight and pounds per dry ton of sludge (lb/dt) [lb/dt = 0.002 x mg/kg]

AVERAGE	MINIMUM	MAXIMUM
PAN mg/kg	mg/kg	mg/kg
PAN lb/dT	lb/dT	lb/dT

#### 3.32 HAVE SLUDGE APPLICATIONS COMPLIED WITH THE FOLLOWING MANAGEMENT PRACTICES AS LISTED IN THE UNIVERSITY OF MISSOURI WQ 426 GUIDE, BEST MANAGEMENT PRACTICES FOR BIOSOLIDS LAND APPLICATION?

- |  |                              |  |
|--|------------------------------|--|
| 1. No discharge of biosolids from application site.    | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 2. Public contact sites restriction.                   | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 3. Crop restrictions.                                  | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 4. Harvest and grazing restrictions.                   | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 5. Threatened or endangered species protection.        | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 6. Nitrogen limitations.                               | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 7. Buffer zones.                                       | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No |
| 8. Slope limitations for application sites.            | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 9. Storm water runoff.                                 | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 10. Frozen, snow-covered or saturated soil conditions. | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 11. Biosolids storage.                                 | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 12. Application rates.                                 | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 13. Application equipment.                             | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 14. Soil pH limitations.                               | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 15. Soil phosphorus limitations.                       | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 16. Soil depth limitations.                            | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |
| 17. Record keeping.                                    | <input type="checkbox"/> Yes | <input type="checkbox"/> No            |

If No, attach sheet with explanation

#### 3.33 CLASS A SLUDGE (PER WQ 424 GUIDE - BIOSOLIDS STANDARDS FOR PATHOGENS AND VECTORS).

Does the sludge meet Class A pathogen reduction?

☐ Yes ☒ No

Has Class A sludge been applied to public use sites?

☐ Yes ☐ No

If yes to the second question in 3.33, contact Department of Natural Resources.

## INSTRUCTIONS FOR FILLING OUT ANNUAL REPORT FORM S - DOMESTIC SLUDGE

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### C. POLLUTANT LIMITS

POLLUTANT	AVERAGE SAMPLE CONCENTRATION mg/kg DRY WEIGHT	LOW METAL CONCENTRATION mg/kg DRY WEIGHT	CEILING CONCENTRATION mg/kg DRY WEIGHT
ARSENIC		41	75
CADMIUM		39	85
CHROMIUM		1,200	3,000
COPPER		1,500	4,300
LEAD		300	840
MERCURY		17	57
MOLYBDENUM		18	75
NICKEL		420	420
SELENIUM		36	100
ZINC		2,800	7,500

### D. PATHOGENS

Pathogen testing is required for all sludges to show operational compliance, including sludges treated by a PSRP approved method.

The geometric mean of the density of fecal coliform is less than 2,000,000 Most Probable Number (MPN) or Colony Forming Units (CFU) per gram of total solids (dry weight basis) for each group of seven samples:

☐ Yes ☐ No

Sampling frequency \_\_\_\_\_

Geometric mean per gram of total solids for each group of seven samples was:

MPN/CFU SAMPLE DATE

MPN/CFU SAMPLE DATE

MPN/CFU SAMPLE DATE

### E. VECTOR REDUCTION PROCESSES

- ☐ 38 percent volatile solids reduction (attach calculations).
- ☐ SOUR test, mg O/hr/g (attach graph and calculations).
- ☐ Other. Attach explanation

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